

S P E C I F I C A T I O N

TITLE OF THE INVENTION:

SEMICONDUCTOR DEVICE AND FABRICATION METHOD THEREOF

This application is a divisional of appln. serial No. 09/381,396, filed September 20, 1999, which is a Section 371 of International Appln. PCT/JP98/01271, filed March 24, 1998, ^{which issued as U.S. Patent No. 6,396,092} and the entire disclosures of which are hereby incorporated by reference.

Technical Field

The present invention relates to a semiconductor device and a fabrication method thereof, and particularly to a semiconductor device which has a capacitor using a high-dielectric-constant or ferroelectric material thin film as a capacitor dielectric film and exhibiting a reduced leakage current, a large capacitance and a high residual polarization, and which is suitable for a memory of a large-scale integrated circuit (LSI), and a fabrication method thereof.

Background Art

A semiconductor memory, typically a dynamic random access memory (DRAM) has a problem associated with the increased area and complicated structure of a capacitor along with a higher level of integration. To cope with such a problem, examination has been made to use, as a capacitor dielectric film, a high-dielectric-constant or ferroelectric material having a significantly large specific dielectric constant as compared with a prior art capacitor using silicon oxide or silicon nitride. In

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